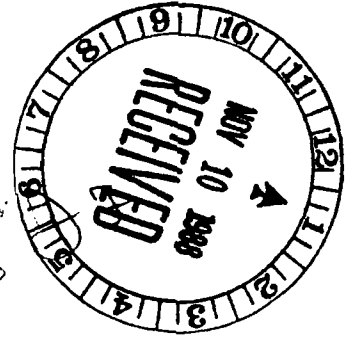


P. Dore



MEMORANDUM FOR THE RECORD

TO: John Fitzgerald, P.E., Environmental Engineer V

FROM: Ida Babroudi, Environmental Engineer III *SB*

DATE: October 26, 1988

SUBJECT: WILMINGTON - Olin Chemical, 51 Eames Street, Wilmington, MA
01887, David Vaughn (617) 336-4555, DEQE Case #3-0471, EPA ID
#MAD001403104

The writer met with Peter Dore, Peter Dillon, and Glenn Gilmore of Boston DWPC, and David Vaughn of Olin on October 26, 1988.

The writer informed Mr. Vaughn that Olin had been listed as a non-priority site, by mistake, in the October 15, 1988, public site list. However, if they submitted additional information to the Department a decision could be made towards, in fact, classifying the site. A correct non-priority classification would enable Olin to apply for a Waiver pursuant to 310 CMR 40.537 and with DWPC oversight they would be able to continue work at the site as long as they complied with the MCP (310 CMR 40.00) requirements.

The writer also explained that a no further action determination would not be made by the Department if the waiver route was pursued. Additionally, the writer mentioned that the Olin site was no longer assigned to her, therefore she would not participate in the future DWPC, DHW, Olin meetings.

Mr. Vaughn stated that the MWRA, variance procedures will be pursued by Olin (by early January). He will (in near future) contact Dave Mannix of MWRA to find out how detailed of a technical application should be submitted along with the variance request. One argument which will be used in justification of the variance request is the fact that the surface water designated to receive the effluent is an "antidegradation" stream and therefore incapable of accepting a new discharge. Another argument is the fact that the groundwater designated to receive the effluent is a "Class I" aquifer and the cost of achieving a near water quality effluent is prohibitive.

The total design flow is estimated to be 50 gpm (10-15 gpm from "Plant 3" area, 25 gpm from the "lagoons" area, and 10 gpm from the "landfill" area). Various discussions came up such as: if MWRA's problem was the excess hydraulic volume then they can restrict the discharge on wet days, etc., Olin should probably make a comparison analysis of their discharge with landfill leachate.

Peter Dillon indicated that even though a Class III declassification of the aquifer would probably be rejected; however, a Class II declassification may be an option since chlorides seem to be the main cost issue associated with the treated effluent, Class II is a salt water intruded groundwater classification.



Olin Chemical

247305

Peter Dore suggested Olin to look into financing and inflow reducing activity for MWRA, to be allowed to discharge in return. Peter mentioned that such a conduct was quite common. For instance there is a siphon in Winchester which probably needs to be replaced.

David Vaughn gave the following briefing regarding the Plant B area: 1. The NPDES discharge permit had been modified, 2. They were currently pumping 9.2 gpm and once the two 12" wells are developed the flow will go up to 10-15 gpm. The new 16" recovery well seems to have made a notable impact on contaminant interception. The treatment system has been modified to ease changing the activated carbon units (1000 lb units have replaced the formerly used 55 gallon drum units). The unit operations include: Iron precipitation, Phase separation (phthlates), Chlorination, Ammonia breakdown, and Carbon polishing. The treatment goes on around the clock and storage overnight before discharge (as opposed to storage before treatment) (intermittent treatment used to upset the carbon adsorption activities), E.C. Jordan is in charge of sampling and analysis of control points.

The treatability studies for a biodegradation treatment as opposed to groundwater extraction treatment are almost complete for both Plant B and Lagoon areas. At the Plant B area, the feasibility studies' conclusion has been that it would be feasible to implement such treatment in that area for both groundwater and vadose zone remediation. Groundwater Technology Inc., has basically undertaken the feasibility study for the whole site. Two options exist at the Plant B area: 1. Extraction of groundwater, precipitating the Chromium and the sulfates, then reinjecting it enriched with nutrients and may be hydrogen peroxide for oxygen source; or 2. Stabilizing the Chromium and the sulfates in situ and then try to control and maintain an effective pH (say by use of a lime bed or limestone wall). As far as the Lagoon area is concerned they may need to inject sugars, and anyway the feasibility study is not finalized yet, it may be done by the end of November. Finally additional pump tests will be conducted for hydraulics evaluation. The water generated from the pump tests will be sent off site.

The other alternative to the biodegradation is groundwater extraction and physical and chemical treatment. A multi stage process such as the following may be designed for a 25 gpm flow: 1. Lime addition to precipitate the Chromium (lime is apparently more efficient than caustic), this activity would produce considerable amount of sludge; 2. Chlorides addition to precipitate the sulfates; 3. Air Stripping of Ammonia (then either incinerating the off gas or adsorbing it by use of Sulfates); 4. pH adjustment; 5. Chlorination; and 6. Polishing with activated carbon. Approximately 48 tons/day of sludge (dry weight basis & 2/3 of it being lime) will be produced which should be disposed of off site maybe in Maine, Canada, or New York.

Evaporation maybe used to treat Chlorides in the following set up: 1. Air Stripping of Ammonia (then either incinerating the off gas or adsorbing it by use of Sulfates); 2. Chlorination; 3. Metals precipitation; and 4. Evaporation, which would produce a soluble salt slurry that should be solidified before it could be hauled off site to a landfill. Benchscale tests will be required before a decision could be made. Other concerns are problems w/scaling and the fact that various contaminants are present (synergistic influences).

The approximate costs associated with the above chemical treatment systems are \$6 - \$8 x 10⁶ capital, and \$3 - \$7 x 10⁶ operating, therefore over \$60 x 10⁶ in 20 years. Note that these costs would probably trigger an EIP requirement under MEPA and/or MCP.

The final decisions would be made by Olin in about April 1989. All the above mentioned feasibility studies would be submitted to the Department at that time. The next meeting was scheduled on January 18, 1988 @ 9:00 a.m. A Consent Order would probably be drawn after the April 1989 informal deadline is met.

The 1988 groundwater report will be submitted by January/February 1989. Revised Plant B drawings will be submitted in November 1988.

As far as the landfill area is concerned: an attempt was made to sample all the 6-8 wells around the landfill in May 1988, three of these were dry. Another round of sampling would be conducted in November 1988. It has been concluded that some groundwater moves to the west however, majority of the flow is towards the North and East (and south ditch eventually). No major problems have been encountered up to this point but if necessary the groundwater in this area would also be treated along with the other areas.

Peter Liore, 7th Floor
DEQE, DWPC
One Winter Street
Boston, MA 02108